WHAT IS CLAIMED IS:

1. A method including:

measuring a subinterval of a patient's cardiac cycle correlative to a hemodynamic maximum rate indicator; and

establishing a maximum atrial tracking rate based at least in part on the hemodynamic maximum rate indicator.

2. The method of claim **1**, in which measuring the subinterval includes:

detecting a portion of a QRS complex;

detecting an indication of an aortic valve closure; and

measuring an indication of a time interval between the detected QRS complex and the detected aortic valve closure.

3. The method of claim **2**, in which detecting an indication of an aortic valve closure includes detecting an acceleration fiducial correlative to the aortic valve closure.

4. The method of claim **3**, in which detecting the acceleration fiducial includes detecting an S2 heart sound.

5. The method of claim **4**, in which measuring the indication of the time interval between the detected QRS complex and the detected aortic valve closure includes:

converting a measured time interval between the detected QRS complex and the S2 heart sound into a heart rate; and

adding a rate offset thereto to obtain the indication of the time interval between the detected QRS complex and the detected aortic valve closure.

6. The method of claim **1**, in which establishing the maximum atrial tracking rate includes:

providing a base value of the maximum atrial tracking rate;

detecting a present activity level of the patient;

detecting a maximum activity level over a period of time; and

computing the maximum atrial tracking rate by scaling a difference between the hemodynamic maximum rate indicator and the base value of the maximum atrial tracking rate by a ratio of the present activity level to the maximum activity level, and adding the scaled difference to the base value of the maximum atrial tracking rate to establish the maximum atrial tracking rate.

7. The method of claim **1**, further including:

providing a first tachyarrhythmia therapy rate threshold; and

adjusting the first tachyarrhythmia therapy rate threshold when the maximum atrial tracking rate exceeds the first tachyarrhythmia therapy rate threshold.

8. The method of claim **7**, in which adjusting the first tachyarrhythmia therapy rate threshold includes substantially equating the first tachyarrhythmia therapy rate threshold to the maximum atrial tracking rate when the maximum atrial tracking rate exceeds the first tachyarrhythmia therapy rate threshold.

9. The method of claim **1**, in which measuring the subinterval of the patient's cardiac cycle correlative to the hemodynamic maximum rate indicator is carried out at a plurality of heart rates to create a correlation between heart rate and the hemodynamic maximum rate indicator.

10. The method of claim **9**, in which establishing the maximum atrial tracking rate is based at least in part on the correlation between heart rate and the hemodynamic maximum rate indicator.

11. The method of claim **1**, further including adjusting a criteria for providing an antitachyarrhythmia therapy based on the established maximum atrial tracking rate.

12. The method of claim **11**, further including increasing a rate threshold for providing an antitachyarrhythmia therapy to a value that is greater than or equal to the established maximum atrial tracking rate.

13. The method of claim **12**, further including increasing a lower rate threshold for a lower antitachyarrhythmia therapy zone to a value that is greater than or equal to the established maximum atrial tracking rate.

14. The method of claim **1**, in which establishing the maximum atrial tracking rate includes calculating the maximum atrial tracking rate (MATR) as: MATR = Default MATR + (HMR - Default MATR)•(AL/MAL), where Default MATR is a previously programmed value, HMR is a hemodynamic maximum rate based at least in part on the time interval between the QRS complex and the fiducial, AL is the patient activity level, and MAL is a maximum value of the patient activity level over a preceding time period.

15. The method of claim **1**, in which measuring the subinterval includes:

detecting a portion of a QRS complex;

detecting a heart impedance including variations corresponding to heart contractions;

detecting a time associated with a maximum slope of the heart impedance; and

measuring an active time interval between the detected QRS complex and the time associated with the maximum slope of the heart impedance occurring during the same cardiac cycle as the detected QRS complex.

16. The method of claim **15**, in which establishing the maximum atrial tracing rate includes using a rate corresponding to the active time interval.

17. A cardiac rhythm management system including:

a ventricular sensing channel to detect a QRS complex during a cardiac cycle;

an accelerometer to detect a fiducial of a heart acceleration signal correlative to an aortic valve closure occurring during the cardiac cycle after the QRS complex, and to detect a patient activity level; and

a controller adapted for calculating a maximum atrial tracking rate based at least in part on the activity level and a time interval between the QRS complex and the fiducial.

18. The system of claim **17**, further including:

an atrial sensing channel to detect an atrial heart rate; and

a ventricular therapy module to provide ventricular pacing pulses at a ventricular indicated rate that is based at least in part on the atrial heart rate up to the maximum atrial tracking rate.

19. The system of claim **18**, further including atrial and ventricular electrodes adapted for being associated with an atrium and a ventricle, respectively.

20. The system of claim **18**, in which the ventricular therapy module is also adapted to provide antitachyarrhythmia therapy that is based at least in part on the maximum atrial tracking rate.

21. The system of claim **20**, in which the controller includes a rate threshold for triggering delivery of the antitachyarrhythmia therapy, and in which the rate threshold is increased from a default value when the maximum atrial tracking rate

exceeds the default value of the rate threshold.

22. The system of claim **20**, in which the controller includes a plurality of lower rate thresholds corresponding to different antitachyarrhythmia therapy zones, and in which a lower rate threshold defining a lowest rate zone is increased from a default value when the maximum atrial tracking rate exceeds the default value.

23. The system of claim **17**, in which the controller calculates the maximum atrial tracking rate (MATR) as: MATR = Default MATR + (HMR - Default MATR)•(AL/MAL), where Default MATR is a previously programmed value, HMR is a hemodynamic maximum rate based at least in part on the time interval between the QRS complex and the fiducial, AL is the patient activity level, and MAL is a maximum value of the patient activity level over a preceding time period.

24. The system of claim **17**, in which the controller includes memory locations adapted to provide a correlation between heart rate and the time interval between the QRS complex and the fiducial, and in which the controller is adapted to calculate the maximum atrial tracking rate based at least in part on the activity level and the correlation.

25. A cardiac rhythm management system including:

a ventricular sensing channel to detect a QRS complex during a cardiac cycle;

means for detecting a fiducial of a heart acceleration signal correlative to an aortic valve closure occurring during the cardiac cycle after the QRS complex, and for detecting a patient activity level; and

a controller adapted for calculating a maximum atrial tracking rate based at least in part on the activity level and a time interval between the QRS complex and the fiducial.

26. The system of claim **25**, further including:

an atrial sensing channel to detect an atrial heart rate; and

a ventricular therapy module to provide ventricular pacing pulses at a ventricular indicated rate that is based at least in part on the atrial heart rate up to the maximum atrial tracking rate.

27. A cardiac rhythm management system including:

a ventricular sensing channel to detect a QRS complex during a cardiac cycle;

an impedance sensing circuit to detect a heart impedance signal varying in response to a heart contraction; and

a controller adapted for calculating a maximum atrial tracking rate based at least in part a time interval between the QRS complex and a subsequent maximum slope of the heart impedance signal during the same cardiac cycle as the QRS complex.

28. The system of claim **27**, further including:

an atrial sensing channel to detect an atrial heart rate; and

a ventricular therapy module to provide ventricular pacing pulses at a ventricular indicated rate that is based at least in part on the atrial heart rate up to the maximum atrial tracking rate.